Legislator University

Water and the Environment

Establishment of Environmental Regulations

Congress

Creates environmental law the states may/must implement

Federal Agency

Creates regulations to implement law

State Legislature

Passes authorization to create state program to implement law

State Agency

Adopts regulations to implement law

State Agency

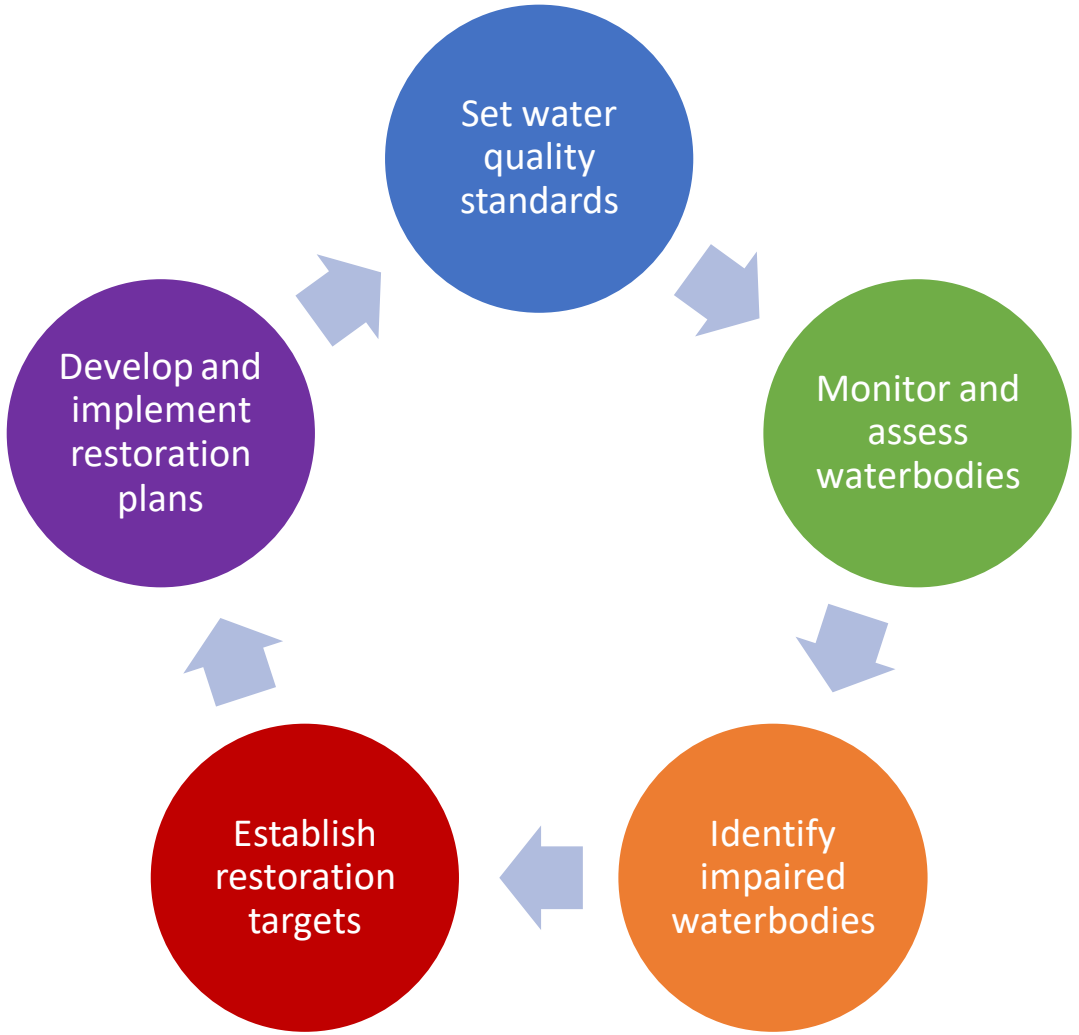
Implements programs via permitting and compliance monitoring

Federal Clean Water Act

- Congress enacted the Clean Water Act (CWA) in 1972.
- The CWA is the primary federal law governing water quality and water pollution.
- The CWA requires states to:
  - Identify waters that are impaired or in danger of becoming impaired
  - Calculate and allocate pollutant reduction levels necessary to meet approved water quality standards

Florida Watershed Restoration Act

- Florida implemented the CWA in 1999 through the Florida Watershed Restoration Act (s. 403.067, F.S.).
- The Act requires good science, public participation, and equitable allocation of load reductions.

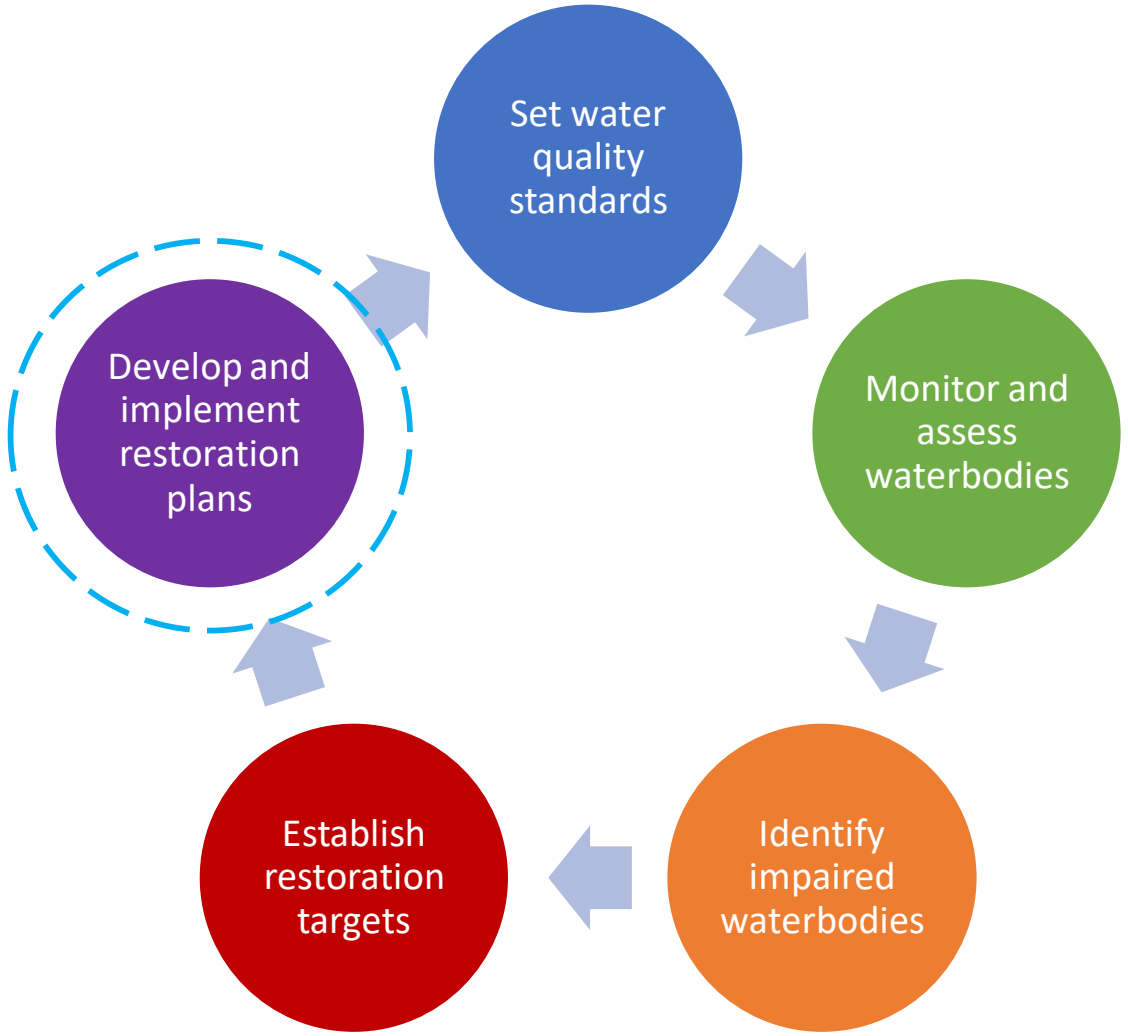


Total Maximum Daily Load

- A total maximum daily load (TMDL) establishes a target for the maximum amount of a specific pollutant that may enter a waterbody while ensuring the functionality and health of the waterbody.
- A TMDL is established for each pollutant causing a water quality problem in a particular waterbody.
- TMDLs are established by the Department of Environmental Protection (DEP) by rule.

Basin Management Action Plans

- A basin management action plan (BMAP) is a comprehensive set of strategies to reduce or eliminate pollutant loadings and restore impaired waterbodies to health.
- BMAPs are designed to achieve pollutant reductions established by a TMDL.
- A BMAP often addresses multiple TMDLs.
- BMAPs are developed for surface waters and groundwater-fed springs.
- BMAPs address various pollutants such as nutrients and bacteria.



What causes increased nutrients in waterbodies?

Several sources of pollution contribute to increases in nutrients (nitrogen and phosphorus) found in waterbodies:

- Discharges from wastewater treatment facilities
- Stormwater systems
- Excess fertilizers, herbicides, and insecticides
- Oil, grease, and toxic chemicals from urban runoff
- Bacteria and nutrients from livestock, pet waste, and faulty septic systems
- Atmospheric deposition

BMAPs

- BMAPs consist of strategies to achieve pollutant load reductions from these various pollution sources, such as:
  - More stringent limits on wastewater facility discharges
  - Land acquisition and conservation
  - Wastewater and stormwater system infrastructure improvements
  - Agricultural best management practices (BMPs)
  - Public education
  - Amount of financial assistance to be made available by each entity
- Every BMAP is different to account for variations in water quality problems, land uses, pollutant sources, stakeholders, geography, hydrology, and economic resources.

TMDLs and BMAPs Map

Legend

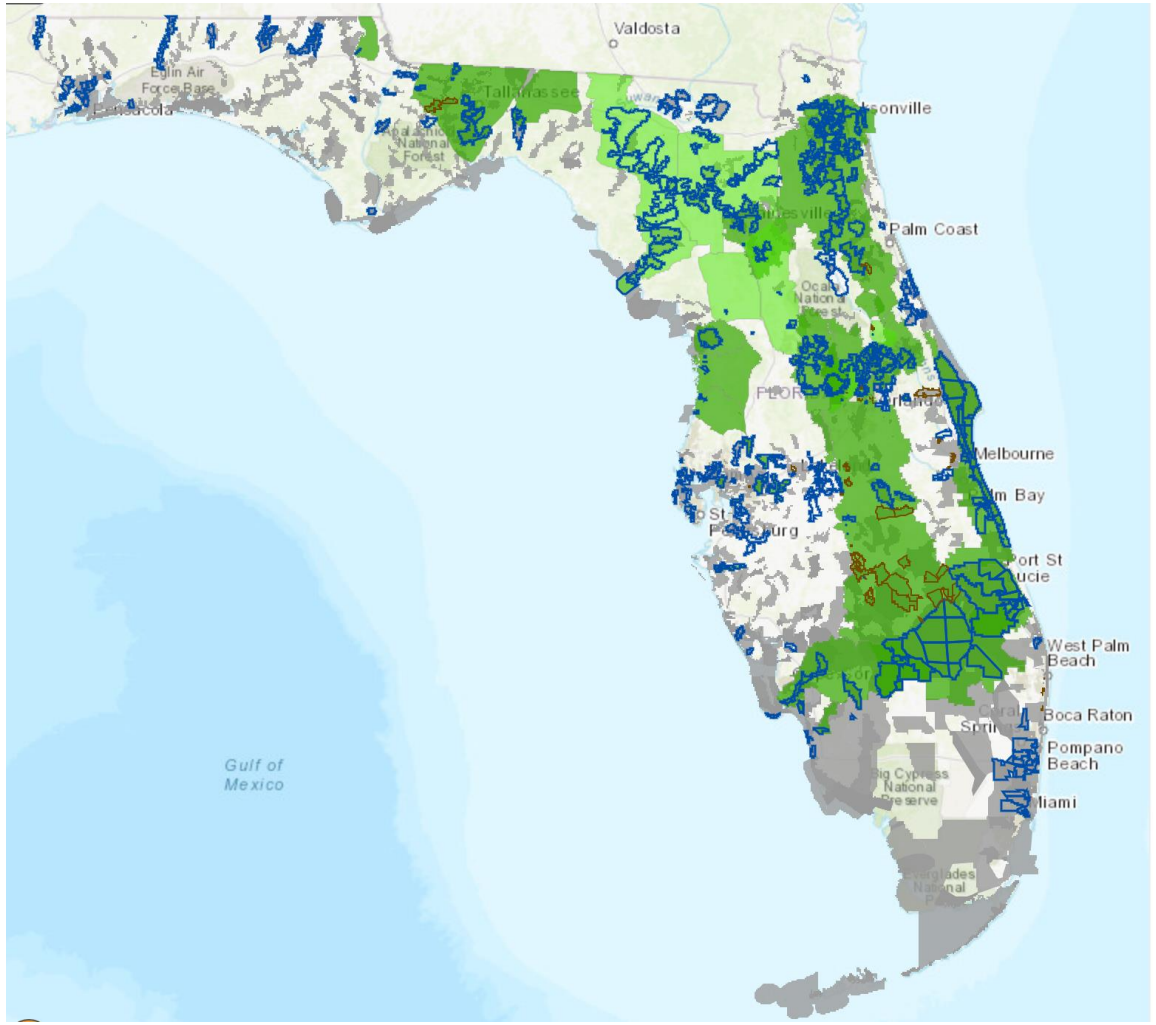
Florida Total Maximum Daily Load (TMDL)

- TMDLs Adopted
- TMDL Activities In Progress

Basin Management Action Plans (BMAPs)

- Adopted BMAPs
- Pending BMAPs

Waters Not Attaining Standards (WNAS)



Algal Blooms in Florida

- Excess nutrients can lead to rapid growth of algae.
- Two primary types of algae that negatively impact Florida's environment:
  - Blue-green algae (occurs in fresh water)
  - Red tide (occurs in saltwater)
- Excess algae can have negative impacts to fish, wildlife, the environment, and humans.
- Algal blooms that are toxic or harmful to humans or animals are known as harmful algal blooms.

Blue-green Algal Blooms

- Since 2000, the frequency and intensity of freshwater algae blooms in Florida have been increasing, especially in central and south Florida.
- While blue-green algae blooms occur naturally, increases in nutrients can exacerbate the extent, duration, and intensity of blooms.
- Some blue-green algae produce toxins that can contribute to environmental problems and affect public health. Non-toxic algal blooms can also harm the environment.
- DEP is the lead agency for responding to freshwater algal blooms.

Lake Okeechobee Algal Blooms

- Blue-green algae thrives in Lake Okeechobee during summer months when warm water, longer days, and nutrient-laden runoff from wet-season create ideal conditions for a bloom.
- When the water level of Lake Okeechobee gets too high, water from the lake is discharged east and west to the Caloosahatchee and St. Lucie Rivers and sent to the Gulf of Mexico and Atlantic Ocean.
- These discharges dilute the salinity levels of the rivers and estuaries and can lead to the development of toxic blue-green algae in these waterbodies.

Red Tide

- In Florida, red tide is a higher-than-normal concentration of a microscopic alga that is found in salty waterbodies such as bays, estuaries, and coastal waters.
- Red tides have been documented in the southern Gulf of Mexico as far back as the 1700s and along Florida's Gulf coast since the 1840s.
- Many red tides produce toxic chemicals that can affect both marine organisms and humans.
- There is no direct link between nutrient pollution and the frequency or creation of red tides. However, once red tides are transported inshore, they are capable of using man-made nutrients for their growth.
- The Florida Fish and Wildlife Conservation Commission (FWC) is the lead agency for responding to saltwater algal blooms.

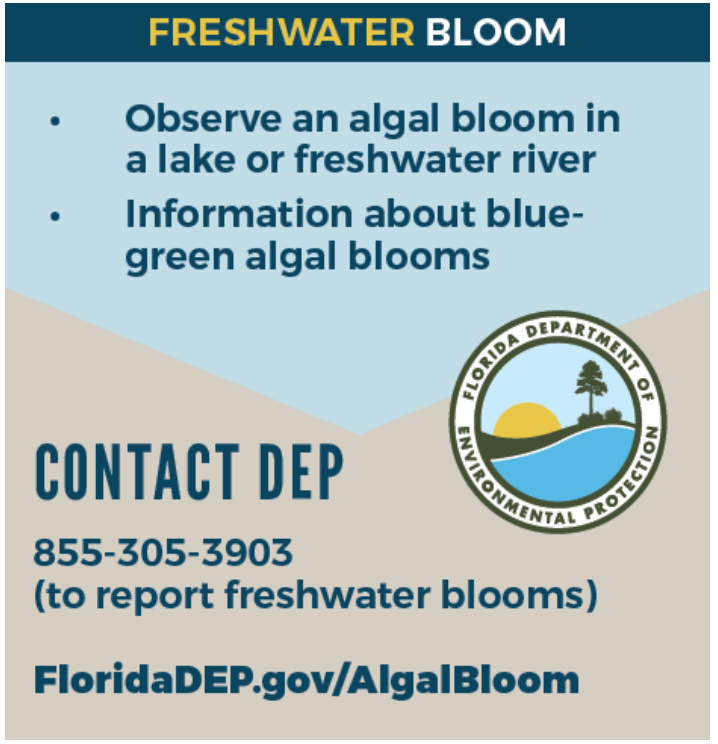
What other factors cause algal blooms in Florida?

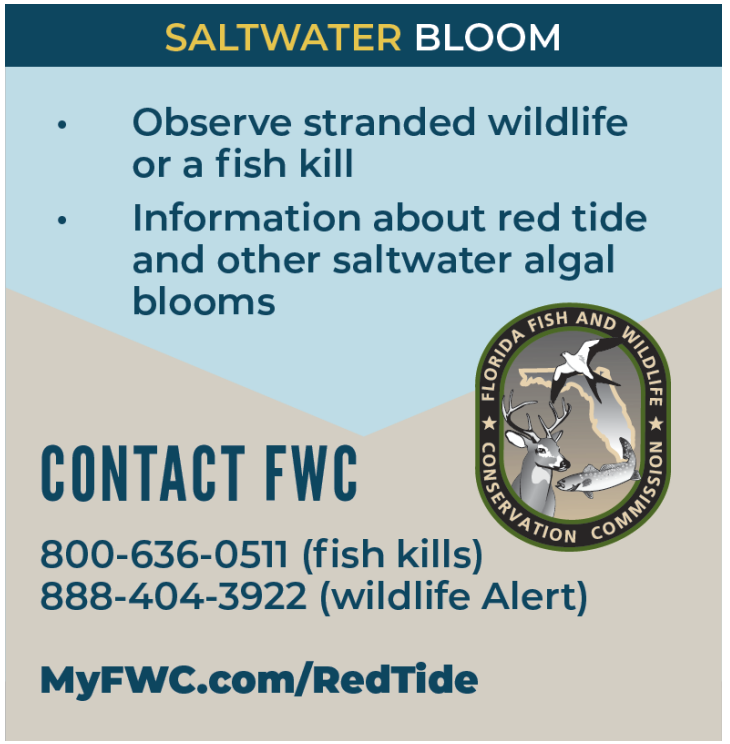
In addition to excess nutrients, the following factors also influence the frequency and intensity of algal blooms:

- Water and air temperatures
- Wind speed and direction
- Sunlight
- Water chemistry (salinity, dissolved oxygen, etc.)
- Hydrologic and other ecosystem disturbances
- Ocean currents (for saltwater blooms)

Reporting Algal Blooms

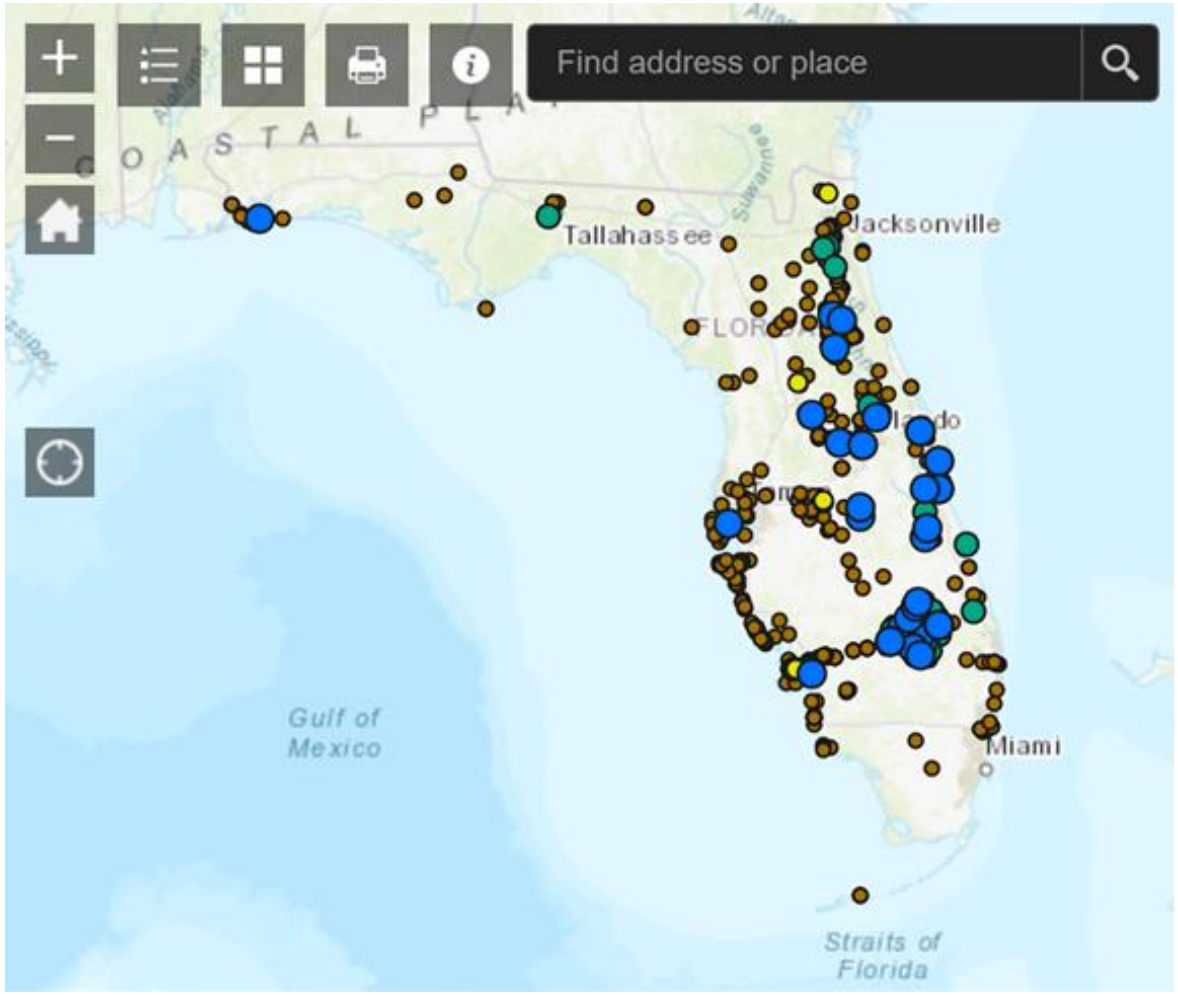
- Citizens may report freshwater algal bloom sightings to DEP online or by phone 24/7.
- Information about fish kills or saltwater algal blooms may be reported to FWC by phone.





Interactive Map of Blue-green Algal Bloom Sampling

- Maintained by DEP
- Samples taken by DEP, FWC, and the water management districts (WMDs)
- Accessible at www.algalbloomupdates.com



DEP Weekly Updates on Blue-green Algal Blooms

BLUE-GREEN ALGAL BLOOM WEEKLY UPDATE

REPORTING NOVEMBER 13 - NOVEMBER 19, 2020

SUMMARY

There were 18 reports of visits in the past seven days (11/13 - 11/19), with 18 samples collected. Algal bloom conditions were observed by the samplers at six sites.

Satellite imagery for **Lake Okeechobee** and the **Caloosahatchee and St. Lucie estuaries** from 11/18 showed low bloom potential on less than 5% of Lake Okeechobee. No significant bloom potential was observed on the visible portions of either estuary.

Satellite imagery for the **St. Johns River** from 11/18 did not show any bloom potential on visible portions on **Lake George** or the **main stem of the St. Johns River**. Please keep in mind that bloom potential is subject to change due to rapidly changing environmental conditions or satellite inconsistencies (i.e., wind, rain, temperature or stage).

On 11/16, South Florida Water Management District (SFWMD) staff collected one sample from the **C43 Canal - S77 (upstream)** and two samples from **Lake Okeechobee - S308C (lakeside)**. All three samples were dominated by *Microcystis aeruginosa*. The **C43 Canal - S77 (upstream)** sample had no detectable cyanotoxins, while the two collected at **Lake Okeechobee - S308C (lakeside)** had 1.0 part per billion and trace (0.91 ppb) total microcystins, respectively.

On 11/16, Florida Department of Environmental Protection (DEP) staff collected samples at **Harbor Isle Lake - Northwest Lobe** and **Harbor Isle Lake - Southern Lobe**. Both samples were dominated by *Microcystis aeruginosa* and had 1.6 ppb and 2.2 ppb total microcystins, respectively.

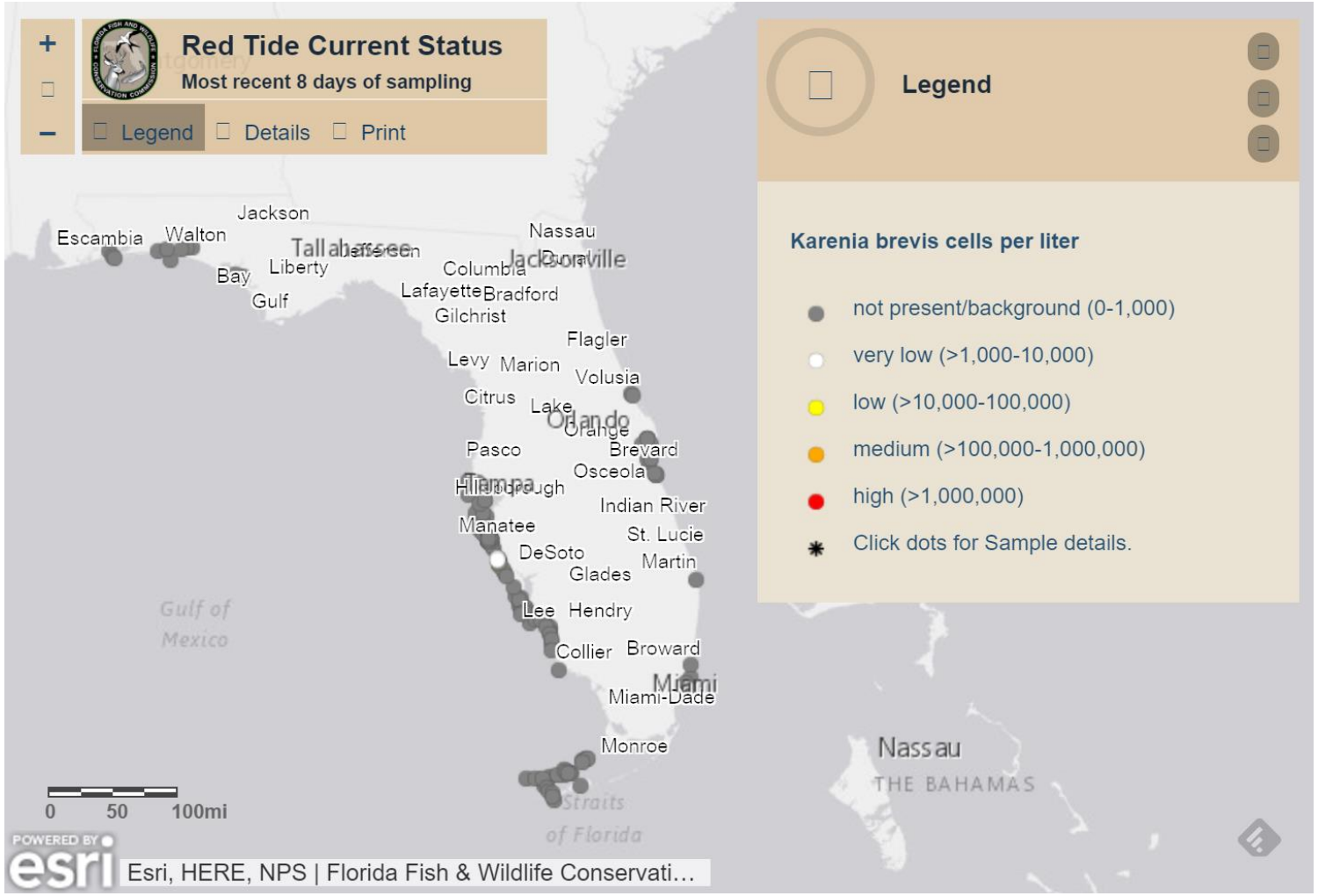
On 11/17 and 11/18, SFWMD staff collected samples from **Lake Okeechobee at KISSR0.0**, **LZ2**, **L005**, **POLESOUT**, **RITTAE2** and **LZ30**. Total microcystin results follow each sample location name: **KISSR0.0** (non-detect); **LZ2** (non-detect); **L005** (trace, 0.48 ppb); **POLESOUT** (trace, 0.49 ppb); **RITTAE2** (non-detect); and **LZ30** (non-detect). The sites were predominantly dominated by *Microcystis aeruginosa*.

On 11/19, DEP staff collected samples from **Gator Lake - Six Mile Cypress**, **Lake Okeechobee - above S77 lock**, **Lake Okeechobee - S308 (lakeside)** and **Lake Anderson - NW side near outfall**. Sample results are still pending.

On 11/19, Fish and Wildlife Conservation Commission (FWC) staff collected algal bloom identification samples from **Indian River - Parrish Park**, **Banana River - 520 Slick Boat Ramp** and **Indian River - Eau Gallie Pier**. Sample results are still pending.

Interactive Map of Red Tide Sampling

- Maintained by FWC
- Samples taken by FWC and its partner entities
- Accessible at https://myfwc.com/research/redtide/tools/



Blue-Green Algae Task Force

- Five-member advisory body established by Governor DeSantis in January 2019
- Responsibilities:
  - Expediting progress toward reducing adverse impacts of blue-green algae blooms
  - Supporting key funding and restoration initiatives to expedite nutrient reductions in Lake Okeechobee and the downstream estuaries
  - Identifying priority projects for funding that are based on scientific data
  - Building upon BMAPs to provide the largest and most meaningful nutrient reductions in key waterbodies
  - Make recommendations for regulatory changes
- Published recommendations in October 2019

SB 712 (2020) – Clean Waterways Act

- Several recommendations of the Blue-Green Algae Task Force were included in the Clean Waterways Act.
- The Clean Waterways Act was a comprehensive water quality bill that required certain state agencies, local governments, and private sector entities to improve water quality through stricter regulations and close monitoring of Florida's water resources.
- The Clean Waterways Act included regulatory changes related to domestic wastewater, septic tanks, stormwater, agricultural operations, biosolids application, and potable reuse.

SB 712 (2020) – Clean Waterways Act

Domestic Wastewater

- DEP must adopt rules to limit, reduce, and eliminate wastewater system pipe leakages.
- Wastewater facilities must file annual asset management plans and document expenditures on asset management and rehabilitation.
- Effective July 1, 2025, domestic wastewater discharges into the Indian River Lagoon must meet advanced wastewater treatment requirements.
- BMAPs for nutrient TMDLs must include wastewater treatment plans.
- DEP must report to the Legislature and the Governor an annual summary of sanitary sewer overflows, including causes and volumes recovered.

SB 712 (2020) – Clean Waterways Act

Septic Tanks

- The Onsite Sewage Program will be transferred from the Department of Health to DEP.
- DEP must adopt rules to establish septic tank setback distances to prevent contamination of groundwater and surface waters.
- BMAPs for nutrient TMDLs must include septic tank remediation plans when needed to restore an impaired surface water.

Stormwater

- DEP and WMDs must update stormwater design and operation regulations using the most recent science.

SB 712 (2020) – Clean Waterways Act

Agriculture

- The Department of Agriculture and Consumer Services (DACS) must perform onsite inspections of each agricultural producer enrolled in BMPs at least every two years.
- DACS, in cooperation with higher education agricultural entities, must develop research plans and legislative budget requests to improve agricultural BMPs or limit nutrient impacts from agriculture.

Biosolids Land Application

- Land application of biosolids must comply with water table separation requirements or demonstrate water quality protection.

Potable Reuse

- DEP must initiate rulemaking to enable potable reuse projects.

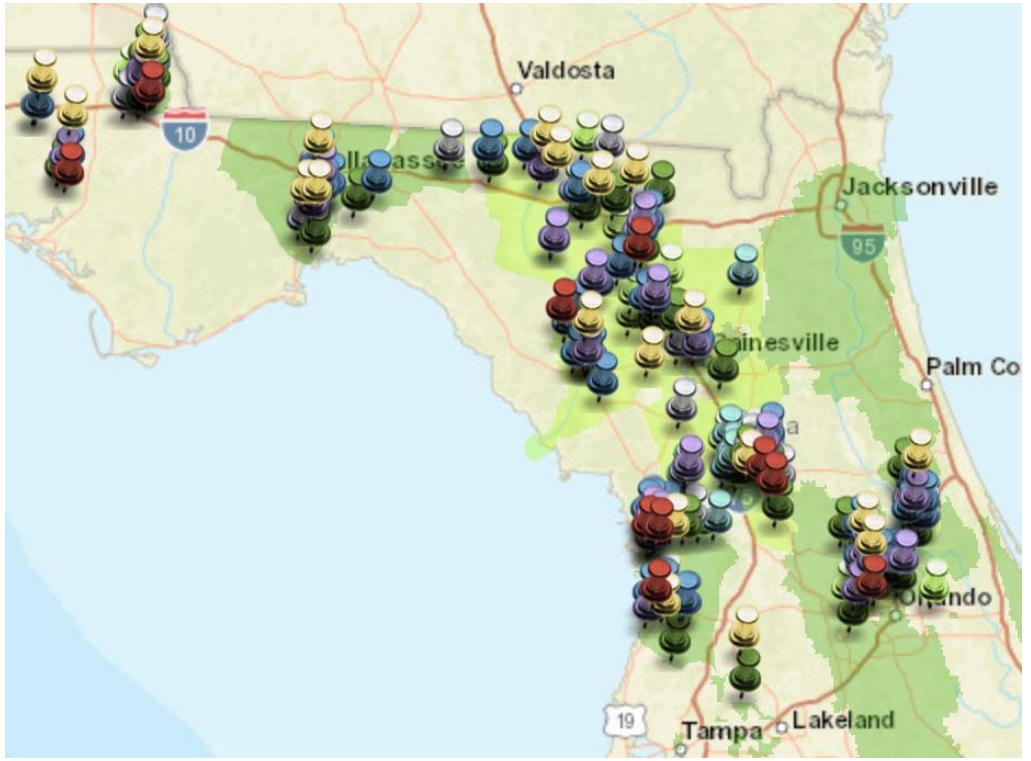
HB 1091 (2020) – Environmental Enforcement

In 2020, the Legislature passed HB 1091 to increase penalties for those who violate environmental laws. The bill:

- Increased various administrative and civil penalties for violations of environmental and resource protection laws by 50% for most violations
- Increased the maximum amount in administrative penalties that DEP may impose for various violations from $10,000 to $50,000
- For certain violations, specified that each day a violation occurs constitutes a separate offense

Springs Restoration

- In 2016, the Legislature identified 30 “Outstanding Florida Springs” that require additional protections to ensure their conservation and restoration. These additional protections are outlined in BMAPs for these springs.
- Since 2016, the Legislature has appropriated $50M per year for springs restoration.
- Types of projects funded include improved wastewater treatment and collection, septic tank upgrades and conversion to sewer, agricultural BMPs, land acquisition, aquifer recharge, and restoration of water quality.



Lake Okeechobee Restoration

- The Everglades Agricultural Area Storage Reservoir is an ongoing project designed to send clean water south to the Southern Everglades and Florida Bay while reducing damaging discharges from Lake Okeechobee to the east and west coasts.
- The project includes a combination of canals, stormwater treatment areas, and a storage reservoir intended to improve water quality.
- In 2017, the Legislature passed SB 10 to accelerate progress on the project.

Funding

- For FY 2020-2021, the Legislature appropriated $645M for Everglades restoration and water resource protection, including:
  - $322M for Everglades restoration projects
  - $50M for Lake Okeechobee water quality improvements
  - $25M for Indian River Lagoon water quality improvements
  - $25M for St. Johns River, Suwannee River, and Apalachicola River water quality improvements
  - $50M for springs restoration
  - $9.6M for red tide research

Where to Go for Help

State Affairs Committee

Ralph Massullo, MD, *Chair*

Heather Williamson, *Staff Director*

(850) 717-4890

Environment, Agriculture & Flooding Subcommittee

Alex Moore, *Policy Chief*

(850) 717-4890

Agriculture & Natural Resources Appropriations Subcommittee

Scarlet Pigott, *Budget Chief*

(850) 717-4810